in FIG. 6B, when the proximal end portion 6*b* is inserted in the groove 7*c*, a connection terminal 6*c* of a common electrode formed on the proximal end portion 6*b* projects downward from the housing 7. When the piezo-electric actuating elements 6 are inserted in the groove 7*c*, the electrodes on the front and rear surfaces at the proximal end portions 6*b* of the piezo-electric actuating elements 6 are directly connected to the corresponding pairs of lead terminals 7*a* through solder portions 7*d* and are thus fixed to the housing 7. The connection terminal 6*c* of the common electrode is connected and fixed to the bottom plate 10 together with the eight lead terminals 7*a*, as shown in FIG. 3. At the same time, the control drive circuits 8 are also connected to the bottom plate 10 through the connectors 8*b*.

FIG. 7C shows the result of an experiment conducted for examining the relationship between the stroke and the depression force of the sensing rod 3 of the braille type cell module constituted in the manner as described above. An angle θ, defined by the mounting plane 5*d* of the second lever 5*b* on which the sensing rod 3 is mounted, and the horizontal direction were determined as a parameter, and the experiment was conducted with $\theta=-15°$, 0°, 15°, and 30°. The four cases of this experiment will be compared. In the case indicated by an alternate long and two short dashed lines for $\theta=-15°$, the depression force is smallest at a point where the stroke is 0 mm. In the case indicated by a solid line for $\theta=0°$, the depression force is largest at a point where the stroke is 0.8 mm. In the case indicated by a broken line for $\theta=30°$, the depression force is largest at a point where the stroke is 0 mm and smallest at a point where the stroke is 0.8 mm. In the case indicated by an alternate long and short dashed line for $\theta=15°$, the depression force exhibits an intermediate value between $\theta=0°$ and $\theta=30°$. It is preferable that necessary depression forces are obtained for the respective strokes with appropriate differences among them. If the depression forces fall within the range of this experiment, they can be put into practical use.

In FIG. 7A a sectional view for explaining the operational diagram shown in FIG. 7C is illustrated, and in FIG. 7B an enlarged sectional view shown in FIG. 7A is illustrated, respectively.

As shown in FIGS. 8A, 8B and 8C, when an appropriate curved surface is formed on the mounting plane 5*d* of the second lever 5*b* to extend from its distal end toward the support rod 4, the contact angle defined by the mounting plane 5*d* and the sensing rod 3 can be set at an optimum value for rotation of the pushing-up cam 5. Then, necessary depression forces can be maintained throughout the wide range of strokes with the appropriate differences among them.

In FIG. 9, a projection 5*e* is formed on a portion of the first lever 5*a* of the pushing-up cam 5 of this embodiment which is abutted against the piezo-electric actuating element 6. When the projection 5*e* is provided, contact between the first lever 5*a* and the piezo-electric actuating element 6 becomes smooth, and the displacing movement of the piezo-electric actuating element 6 can be efficiently converted to the vertical movement.

FIG. 10 shows the second embodiment of the present invention wherein the structure of the frame body 1 of the first embodiment is partly modified. In this embodiment, the upper portion of one side surface 1*c* is constituted by an auxiliary side plate 1*i* which can be detached from an upper body 1*a* and a partition plate 1*e*. A locking pawl 1*k* to be engaged with a locking groove 1*j* of the upper body 1*a* and a locking hole 1*m* to be engaged with a locking pawl 1*l* of the partition plate 1*e* are formed in this auxiliary side plate 1*i*, and the auxiliary side plate 1*i* is fixed on the upper portion of one side surface 1*c* of the frame body 1 by these locking means. When support rods 4 and pushing-up cams 5 are to be built into the frame body 1, one end of each of the two support rods 4 is put in the corresponding one of two holes 1*d* in the other side surface 1*c*. Then, the pushing-up cams 5 are mounted on the two support rods 4 such that their second levers 5*b* intersect each other. Finally, the other end of each of the two support rods 4 is put in the corresponding one of the two holes 1*d* of the auxiliary side plate 1*i*, and the locking pawl 1*k* and the locking hole 1*m* are engaged with the locking groove 1*j* of the upper body 1*a* and the locking pawl 1*l* of the partition plate 1*e*, respectively, thereby fixing the auxiliary side plate 1*i* to the frame body 1.

FIG. 11 shows the third embodiment of the present invention wherein support rods 4 and pushing-up cams 5 are mounted on a cassette 11 in advance, and the cassette 11 is mounted on a frame body 1.

The U-shaped cassette 11 has the two side surfaces each of which has two holes 11*a* corresponding to the holes 1*d* in the side surface 1*c* of FIGS. 1 and 10 and a projection 11*b* to be locked in a locking hole in formed in each side surface 1*c* of the frame body 1. Holes 11*c* for allowing sensitive rods 3 to extend therethrough are formed in the upper surface of the cassette 11. The support rods 4 and the pushing-up cams 5 are mounted on this cassette 11 in the same manner as described in the first and second embodiments. Then, the cassette 11 is mounted on the frame body 1, and the projections 11*b* are engaged with the locking holes 1*n*, thereby fixing the cassette 11 to the frame body 1. According to this embodiment, since the support rods 4 and the pushing-up cams 5 are mounted on the cassette 11 in advance, assembly, maintenance, and replacement are facilitated.

In this embodiment, projecting portions 1*p*; for ensuring engagement with one adjacent frame body 1, and recessed portions 1*q*; to be engaged with the projecting portions 1*p* of the other adjacent frame body 1, are provided at the front and rear portions of the two side surfaces 1*c* of this frame body 1. These projecting portions 1*p* and the recessed portions 1*q* can be provided in the first and second embodiments as well.

FIGS. 12 to 14 are perspective views for explaining the structure and assembling method of the fourth embodiment. In the fourth embodiment, the structure of a cassette 11 is different from that of the third embodiment, and the structure of a frame body 1 is obtained by partly modifying that of the first to third embodiments. In this embodiment, as shown in FIG. 12, the cassette 11 is formed by molding a synthetic resin into an H shape. Two holes 11*a* similar to those of the third embodiment are formed in each of the two side surfaces of the cassette 11. Also, two projections 11*d*, to be fit in two recessed locking portions it formed in two side surfaces 1*c* of a frame body 1, and locking pawls 11*e*, to be engaged with recessed locking portions 1*u* formed in the two side surfaces 1*c* of the frame body 1, are provided to the cassette 11. In this embodiment, support rods 4 and pushing-up cams 5 are mounted on the cassette 11 in advance in the same manner as in the third embodiment. Thereafter, the cassette 11 is mounted on the frame body 1 from the horizontal direction such that the projections 11*d* are fit in the recessed locking portions it